



# UNITED STATES PATENT AND TRADEMARK OFFICE

1/1

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/423,948	04/14/2000	LEONID BERESNEV	2345/103	7349
26646	7590	04/06/2004	EXAMINER	
KENYON & KENYON ONE BROADWAY NEW YORK, NY 10004			WANG, GEORGE Y	
		ART UNIT		PAPER NUMBER
		2871		

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.	BERESNEV ET AL.	
09/423,948	Examiner	Art Unit
	George Y. Wang	2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 26 January 2004.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 6-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 6-10 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 14 April 2000 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) Notice of References Cited (PTO-892)  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_ .  
5) Notice of Informal Patent Application (PTO-152)  
6) Other: \_\_\_\_\_ .

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on January 26, 2004 has been entered.

### ***Drawings***

2. New corrected drawings are required in this application because they are informal. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2871

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 6-8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizumi (U.S. Patent No. 4,611,916) in view of De Lang (U.S. Patent No. 3,635,552).

5. Regarding claims 6-8, Yoshizumi discloses a tunable interferometer (fig. 1) for measuring an optical surface having a light source (fig. 1, ref. 1), a reference surface reflecting the first interference beam (col. 1, lines 38-58), a test object (fig. 1, ref. 7) reflecting a second interference beam, a beam splitter where both beams strike, a polarizer and two  $\lambda/4$  retardation plates (fig. 1, ref. 4, 5, 23) that linearly polarizes (col. 3, lines 14-15) the first and second interference beam before the test object and reference and before the photodetectors with polarizations states that differ from each other

Art Unit: 2871

However, Yoshizumi fails to specifically disclose a rotatable linear analyzer positioned at the output of the interferometer having a variable polarization state and capable of tuning the interferometer as a function of the polarized beams.

De Lang discloses an optical interferometer with a rotatable linear analyzer (fig. 1, ref. 10) positioned at the output of the interferometer having a variable polarization state and capable of tuning the interferometer as a function of the polarized beams.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have positioned at the output of the interferometer, a rotatable linear analyzer (abstract) having a variable polarization state and capable of tuning the interferometer as a function of the polarized beams since one would be motivated to reduce time variance that usually results from generation of phase interference patterns (col. 1, lines 67-75). Furthermore, a rotatable linear analyzer would reduce the number of adjustments, for example of brightness patterns, which have to take successfully in time (col. 1, lines 71-75).

6. As to claim 10, Yoshizumi and De Lang disclose a tunable interferometer as recited above. However, neither reference specifically teaches an analyzer that is physically separate from the interferometer.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use an analyzer that is physically separate from the interferometer since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japiske*, 86 USPQ 70. Furthermore, one of ordinary skill in

the art would be motivated by cost efficiency since having an analyzer physically separate from the interferometer does not require additional installation costs. Also, the reduction of an integrated analyzer would also facilitate the use and transportation of the interferometer by reducing its weight and size.

7. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshizumi and DeLang in view of Sharp et al. (U.S. Patent No. 5,627,666, from hereinafter "Sharp").

Yoshizumi when modified by DeLang discloses a tunable interferometer as recited above. However, the references fail to specifically teach an analyzer having an electrically tunable liquid-crystal element with linear polarizer.

Sharp discloses an optical interferometer with phase modulator having an analyzer with an electrically tunable liquid-crystal element with linear polarizer (fig. 1, ref. 40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used an analyzer with an electrically tunable liquid-crystal element with linear polarizer since one would be motivated by increased tuning range (col. 2, lines 35-46). Because liquid cells have optic axes, which are rotatable upon application of an electric field, the cells provide discrete switching between several rotatable orientations, even in opposite directions (col. 2, lines 35-46), permitting a higher level of reliability and flexibility.

***Response to Arguments***

8. Applicant's arguments filed 06 January 2003 have been fully considered but they are not persuasive.

Applicant argues correctly that the Yoshizumi reference fails to teach a rotatable linear analyzer positioned at the output of the interferometer. However, the DeLang reference, when used in combination with the Yoshizumi reference, makes up for this deficiency. According to Applicant, DeLang does not include features of a reference surface, light from a light source impinging on that surface, and an analyzer. Examiner asserts that Yoshizumi reference fully supports these elements – a reference surface (col. 1, lines 38-58), a light source (fig. 1, ref. 1) – save an analyzer. Therefore, the DeLang reference has only the necessity of curing the deficiency of the missing analyzer.

In response to applicant's main argument that the Yoshizumi reference and the DeLang reference are not combinable because the DeLang reference is focused on solving an entirely different purpose, Examiner notes that the intended use of an apparatus does not qualify as a patentable limitation. *Ex parte Masham*, 1 USPQ2d 1647 (1987). Furthermore the fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Furthermore, Applicant describes DeLang's purpose as recited in its disclosure but makes no attempt to distinguish the actual difference in purpose. Also, Applicant recites that the Yoshizumi

Art Unit: 2871

reference teaches away but mere recitation something teaches away does not describe how the alleged "adjusting the carrier holding the test object" presumably teaches away from the combination. Moreover, DeLang provides more than sufficient motivation to positioned a rotatable linear analyzer (abstract) having a variable polarization state and capable of tuning the interferometer as a function of the polarized beams at the output of the interferometer in order to reduce time variance and the number of adjustments (see above rejection; col. 1, lines 67-75).

With regard to the Sharp reference, it is also clear that there is more than sufficient motivation to have used an analyzer with an electrically tunable liquid-crystal element with linear polarizer since one would be motivated by increased tuning range (col. 2, lines 35-46). Because liquid cells have optic axes, which are rotatable upon application of an electric field, the cells provide discrete switching between several rotatable orientations, even in opposite directions (col. 2, lines 35-46), permitting a higher level of reliability and flexibility. (see above rejection).

In addition, Applicant adds the new limitation "wherein depending on the polarization state of the analyzer..." Examiner argues that this language is actually not further limiting. The language, "depending on the polarization state of the analyzer," is a relative language, which renders the claim indefinite. The actual polarization state is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Art Unit: 2871

Therefore, Examiner holds to the validity of the references and maintains rejection.

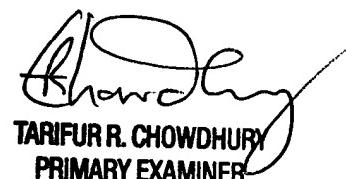
***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Y. Wang whose telephone number is 571-272-2304. The examiner can normally be reached on M-F, 8 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gw  
April 1, 2004



TARIFUR R. CHOWDHURY  
PRIMARY EXAMINER